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VIII. *A Letter from Mr. John Hill, Apothecary, to the President, concerning Windsor Loam,*

Read March 19.
1746-7.

AN Accident calling me Yesterday to *Hedgerley*, the Place where there is dug an Earth commonly call'd *Windsor Loam*, and famous not only in *England*, but many other Parts of the World, I took an Opportunity of going to the Pits, and informing myself of the present Condition of them : And as there appears too much Probability that this Earth will be exhausted, and lost intirely to the World, in a few Years, I presume it may not unacceptable to you to have an Account of the Pits of it, and whatever else relates to it, taken on the Spot ; which I here do myself the Honour of communicating to you, and shall take the Liberty of adding to it what has since occur'd to my Thoughts in regard to the supplying its Place when lost, in the many different Occasions on which it is now us'd.

This Earth itself is a coarse harsh Loam, composed of a very large shining Sand, of extreme Hardness, and a fine soft tenacious Clay : Its Value is its remarkable Quality of standing the Force of the most violent Fires without running to a Glass ; which makes it extremely useful to all who have Occasion for such Fires, and is the Reason of its being sent not only into all Parts of *England*, but to *Holland*, *Germany*, and many other Parts of the World. It is used for making the
Bricks

Bricks employed in building the Wind-Furnaces for melting Iron, for coating over the Insides of Assay-Furnaces, used by the Workers on Metals, and on many Occasions of like kind at the Glass-Houses, both in *England* and other Nations.

The Place where it is dug is *Hedgerley* before-mention'd, a small Village about 22 Miles from *London*, surrounded with Hills, under one of which this Loam lies. The Pits are about a Quarter of a Mile South-west from the Town, and five Miles North of *Windfor*: They extend over four Acres of Ground, situated on the Descent of a Hill; and were intended to have been carried over much more Ground by the Person who now works them; but, on Trials, the Loam is found not to extend as was imagin'd.

They dig, before they come at this, a very good common Brick-Clay, a Tile-Clay, and a Potter's Earth, a kind of Clay of a firmer Texture, and deeper Colour, than either of those; but the *Strata* of these are seldom pure or regular, and at the Boundaries of the *Stratum* of Loam a pure hard Sand evidently the same with that in the Composition of the Loam, but left loose, from there not having been Clay in the Way to bring it into the Condition of the perfect Mass. They have already work'd the *Stratum* so far as to find it bounded East and West by Beds of this Sand, and Northward by Chalk, and are therefore afraid it will be soon exhausted; at least, whatever they get hereafter must be procur'd with more Labour and Expence, as they have no where to search for it but higher up in the Hill; from whence it must be fetch'd at greater Depths, and much more

Expenſe; and this increaſing Difficulty of procuring it has been the Reaſon of its riſing in its Price to that it is now ſold at, which is five Shillings a Buſhel in *London*; but which is not to be wonder'd at, ſince on the Spot the Quantity that makes a thouſand Bricks, which uſ'd to coſt 1s. and 8d. now coſts 10s. the Digging, and will every Year coſt more and more, unleſs a new *Stratum* of it ſhould be diſcover'd ſomewhere thereabouts, which their many unſucceſſful Trials make them at preſent deſpair of.

It is to be obſerv'd, that this valuable Earth forms but a ſingle *Stratum*, and that does not riſe and dip with the Elevation and Deſcent of the Hill, as the *Strata* of the Earth, Stone, &c. in Hills uſually do, but ſeems to be even and flat at its Bottom; for the higher up the Hill they open their Pits, the deeper in proportion they find the *Stratum* of Loam lie.

It is worthy Obſervation, that this Hill appears from this not to have been form'd as the Hills and Mountains on the Earth in general have been by a Diſruption and Elevation of the *Strata* by Violence from within the Earth; for, in that Caſe, this *Stratum* of Loam muſt have been elevated with them, and would have been as near the Surface, or nearly ſo, in one Part of the Hill as in another, and need have been dug for no deeper from the Top than from any other Part; whereas, on the contrary, it appears to lie flat and level underneath the whole Maſs of Earth, which makes the Hill, and was, in all Probability, the Surface, on the firſt Settling of the terreſtrial and other Matter from among the Waters of the Deluge.

The Earth, which makes the Hill, seems to have been a prodigious Mass of Matter, roll'd along by the irresistible Force of that immense Body of Water, and afterwards lodg'd upon it.

That this might be the Case, the immense Force of that vast Quantity of Water, and the Ease with which heavy Bodies are moved in Water, may serve to make probable; and what the more favours the Conjecture is, that the Earth which makes the Hill is not disposed in such regular pure *Strata* as the Earths settled regularly from the Waters always are, but seems evidently a mixed Mass, made by the jumbling together of various Kinds of Clay, &c. which are, in some Parts of it found pure, tho' not in whole *Strata*; and in others irregularly blended in different Proportions one with another; which, as the principal Matters that compose it are of very different Colours, *viz.* a red and a white Clay, is the more apparent. And this is further confirm'd, by there being none of those common extraneous Nodules found lodged in it, which are so frequent in the *Strata* of Clay formed by Subsidence; such as the *Lodus Helmontii*, *Pyritæ*, &c. These have settled with, and lodged themselves almost everywhere among those *Strata*; but it is no Wonder there are none of them here, if this Hill has been formed, as I imagine; since, in the rolling it along, they must naturally have been left behind: And I promise myself, that the Frequency of these Bodies in almost all our little Clay-pits, and the intire Absence of them in the vast Quantities of Clay that have been dug here, will be esteemed, by all who have look'd deeply into these Studies, one great Argument of

the Truth of this System; which may also extend perhaps to many other Hills as well as this.

As the Workmen are now obliged to dig this Loam at 26 Feet deep, instead of about 14, at which Depth they long found it, and must hereafter, as they are obliged to ascend the Hill, dig it at 38 or 40 Feet, the Price of it will, I am afraid, rob us of it, before the Vein is exhausted. I think it would be a Matter worthy Consideration, whether, from examining the Parts it is composed of, a *Succedaneum* might not be found for it, by an artificial Mixture of similar Substances. In order to attempt this, I have, by means of Water, disunited its Parts, and procured them separate; and, on comparing them with the various Earths and Sands from different Parts of *England*, which I have at times procur'd, I think that I can exactly match the Sand with one from *Hampstead-Heath*, and the Clay with one from a Pit near the lower End of *Highgate*: The Proportions may be easily learned, by accurate Observation of the Quantities of each, where disunited; and a *Succedaneum* on these Principles easily made. I intend to attempt it, and recommend the Trial of it to Dr. *Mortimer*, who is well acquainted with the genuine, in *Chemical* and *Metallurgic* Operations, in both of which he is very conversant; and I hope to find it equally serviceable.

It is evident to me, that the only Reason why it endures the Fire so much better than other Clays, is the extreme Hardness and great Quantity of the Sand it contains: And as I imagine it easy to throw a Sand of equal Hardness, and in equal Quantity, into

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an artificial Loam. I see no Reason to doubt of making it equally useful. I am,

S I R,

With all Respect,

*Broadway Westminster,
May 28, 1746.*

Your very obedient

humble Servant,

John Hill.

IX. A Letter from Mr. Rob. Lucas, concerning the Relief he found in the Stone from the Use of Alicant Soap and Lime-Water, to his Brother the Rev. Mr. Richard Lucas F.R.S.

Dear Brother,

Read March 26. 1747. I HAVE now the Satisfaction to acquaint you, that, by God's Blessing upon the Means His Providence directed me to the Use of, I am so far recovered of my Distemper (no other than the Stone), that I have not the least Doubt of being quite free from it in a little time. I am continually voiding Stones all broken, white on the Outside, without much Pain. I can now walk twice as fast as I could three Weeks since, without Uneasiness; nay I rode the other Day at once 24 measur'd Miles, trotting most of it, without Pain or Change of Urine; in one Word, I can be as certain of the dissolving